Enterprise Storage

Service Description

The Enterprise Storage service provides encrypted storage for application and user data.

This service is highly scalable and dynamically adjusts to the performance agencies require. Through auto-tiering, this service provides a full spectrum of storage to meet needs such as:

- High performance disk storage, suitable for mission critical, customer-facing and revenue-generating applications;
- General capacity disk storage, suitable for development and sandbox environments;
- And everything in between.

Storage is provided on a storage area network (SAN), and can be used for applications hosted on virtual or physical servers. The Enterprise Storage service supports block and file (Network File Services (NFS) and Common Internet File System (CIFS)) storage.

The Enterprise Storage service uses redundant components that protect data from loss due to equipment failure. The service supports a wide range of disk technologies including SSD, Fibre Channel and SATA hard drives. This ability, in combination with auto-tiering technology, allows agencies to leverage the right mix of disk technologies dynamically, based on a business application's changing requirements.

Service Notes*

- Enterprise Storage will be charged from the time it is provisioned until it is de-provisioned.
- Storage charges are based on gigabytes (GB) of disk space allocated to the agency. Primary data and copies of primary data are both considered in calculating the amount of total allocated GB (e.g., 100GB of primary allocated storage and 100GB of replicated allocated storage represent 200GB of billable storage).

See Service Detail for additional important Service Notes and Customer Responsibilities.

Customer Benefits

- **Cost savings –** Customers do not have to invest in storage hardware, storage software, data center facilities and personnel.
- **Efficiency –** Sharing common equipment and resources allows for more cost-efficient operations and support.
- **Experienced, Knowledgeable Staff –** Admin technical support staff is highly experienced in the management and administration of enterprise storage software and hardware.
- **Continuity –** The service provides a level of redundancy allowing for recovery from hardware failures.
- **Security –** There is a high level of physical system security at the State Data Center.
- **Agility –** Enterprise storage is configured to scale (with minimal provisioning time) providing the ability to expand and contract with changing business needs.
- **Support –** Monitoring and response by trained Admin technical staff ensures maximum utilization and minimum storage downtime.

Service Rates

Service Offering	Price Per Month
Enterprise Storage	Contact ARM

Enterprise Storage – Service Detail

This Admin service includes:

Hardware

- Storage hardware technologies and associated connectivity components required for the Enterprise Storage infrastructure.

Software

- Storage software tools and technologies associated with enterprise storage management such as storage resource management (SRM) tools, which include capabilities such as storage usage reporting, performance analysis and reporting, alert and event management, problem determination, device configuration and provisioning, support for configuration and change management, etc.
- Data replication software as needed to meet agency availability requirements. Such software enables data replication from the State Data Center to the Clemson University Data Center.

Installation and Configuration

- Installation and configuration of supported storage technologies at the State Data Center.
- Enterprise Storage configured in an active (highly redundant) configuration to enhance storage availability.

Support and Administration

- Incident resolution through the DTO Service Desk.
- Maintenance of storage hardware and software for supported storage platform environments.
- Monitoring and alerting on all supported storage platforms.
- Provision, install and configure storage expansion as needed (e.g., expansion of disks, drawers, cabinets, etc.).

Physical Security and Facilities

- Host all storage technologies in the State Data Center, which has appropriate security and environmentals such as: biometric access control, internal and external security camera coverage, 24/7 armed guard, conditioned power, emergency power, fire detection and suppression, and temperature control.

Security / Encryption

- Enterprise Storage infrastructure supports data encryption at rest.

Related Services

An Enterprise Storage customer might also be interested in these Admin services which are offered separately:

- Data Backup
- Virtual Servers
- Database Hosting
- Enterprise Content Management (ECM) Hosting

Service Level Objectives

Service Level Targets

TBD

Additional Service Notes

- The Enterprise Storage service is primarily based on enterprise storage from Hitachi. The Hitachi storage infrastructure supports a variety of technologies including SSD, Fibre Channel and SATA disk drives.
- Admin maintains a certified Hitachi storage configuration to ensure the highest levels of availability.
- Planned maintenance (e.g., firmware updates) will occur during non-production hours and will adhere to the enterprise change management process.
- The Enterprise Storage service includes data replication services. Data replication is the frequent copy of data from one storage system to a second offsite storage system. The data replication process occurs multiple times in a single day and contributes to the higher availability of enterprise storage due to offsite redundancy.
- Data Backup is a separate service offered by Admin. The Data Backup service backs up application and end-user data, and provides restoration of data due to loss or corruption. Data backups are run once a day and have a 30-day retention period.

Customer vs. Admin Responsibilities

This section identifies in detail Admin and customer responsibilities for these service offerings.

Responsibilities	Admin	Customer
Define network standards for connectivity to the storage area network (SAN).	X	

Responsibilities	Admin	Customer
Manage infrastructure via the change management process: • Initial storage configuration. • Document storage configuration. • Configure storage infrastructure to enhance security. • Provide first level support for infrastructure and proprietary software, including release upgrades.	X	
Report to customers about emergency fixes that have been implemented.	X	
Work with vendors to maintain product compatibility updates and refreshes.	X	
Monitor and maintain storage infrastructure components' (including licenses, hardware, software) respective revision levels to maintain compatibility across the infrastructure.	X	
Maintain infrastructure standards for allocation of storage in accordance with storage tiers.	X	
Respond to Admin inquires to ensure that storage is accessible and functioning per application host.		X
Verify functionality by the application host as requested by Admin.		X
Provide an annual (at a minimum) storage capacity forecast of agency storage requirements.		X
Provide an annual (at a minimum) storage performance forecast of agency storage requirements.		X
Review customer forecasts on an annual basis (at a minimum) and plan Admin disk storage capacity accordingly.	X	
Procure additional storage hardware and software (disks, arrays, switches, etc.) as required to meet forecast demand.	X	
Refresh (life cycle management) storage hardware and software as required to maintain a storage portfolio that is current and vendor supported.	X	
Monitor the usable capacity of the Admin provisioned logical volumes (at the file system level).		X
Manage and administer the Admin provisioned logical volumes at the file system level (e.g., file system formatting, file system health checks, etc.).		X
Provision logical volume in the enterprise storage environment as requested by the server administrator.	X	
Planning, building and administering primary storage and replicated storage infrastructure.	X	

All services are delivered in compliance with State of South Carolina Information Security policies, as presented in SCDIS-200.